

Altitudinal distribution and feeding habits of *Blarinomys breviceps* (Winge, 1888) (Rodentia: Muridae)

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Blarinomys breviceps (WINGE, 1888) is an Akodontini rodent in the subfamily Sigmodontinae, with morphological features associated with fossorial habit characteristics, including a short and conical head, noticeably reduced eyes, short ears and tail, and prominent claws (NOWAK and PARADISO 1983). This ensemble of features renders *B. breviceps* very similar to shrews in overall morphology, and clearly distinguishes this remarkable species from all other neotropical murids (ABRAVAYA and MATSON 1975). Since its description from a skull fragment from the Pleistocene of Lagoa Santa in Minas Gerais in eastern Brazil, the few reports available have described details of the capture of specimens and general aspects of natural history (THOMAS 1896; GOELDI 1902; DAVIS 1944, 1945; NOWAK and PARADISO 1983). The most complete account is that of ABRAVAYA and MATSON (1975), where they reported on morphological and ecological data from 31 specimens collected in Espírito Santo in eastern Brazil during the period of August, 1970 through April, 1974. These authors reported data on individual, sexual, and geographical variation, but emphasized two aspects of the biology of *B. breviceps*. Firstly, ABRAVAYA and MATSON (1975) remarked that all known specimens, for which precise geographical records are available, have been collected from localities above 750 m, suggesting that *B. breviceps* is restricted zoogeographically to the southeastern Brazilian highlands. Secondly, they argued that the observed low coefficients of variation for cranial measurements might be associated with a presumptive insectivorous habit, although according to ABRAVAYA and MATSON (1975) "There is nothing known of the feeding habits of *B. breviceps*."

The last account on *B. breviceps* dates back nearly 20 years ago (MATSON and ABRAVAYA 1977), a fact that underscores the rather sporadic appearance of this species in biological surveys. In this note we report on two specimens of *B. breviceps* from a new locality, Aracruz, in the state of Espírito Santo, Brazil. We believe that the capture of the specimens from Aracruz is important, not only because it adds two more specimens to the relatively small sample of reported 40 specimens in museums worldwide (MATSON and ABRAVAYA 1977), but also because the data provide novel and conclusive information which is relevant for the definition of the altitudinal range of distribution and the feeding niche of *B. breviceps*.

The two individuals of *B. breviceps* reported herein were collected in pitfall traps, and this represents a first account of this type of capture since the other specimens obtained so far have been caught either by hand (DAVIS 1944; ABRAVAYA and MATSON 1975) or with conventional snap traps (MATSON and ABRAVAYA 1977). The pitfalls were set originally as

part of a long-term project started in January of 1994, intended to sample and monitor the herpetofauna of a second growth forest surrounded by eucalyptus plantations in the locality of Aracruz (19° 49' S, 40° 16' W), state of Espírito Santo, eastern Brazil.

Buckets of approximately 50 liters were used as pitfalls with drift fences arranged in linear transects. The two specimens of *B. breviceps*, one male and one female, were collected on consecutive nights (3–4 July, 1995), in the same pitfall trap. The stomachs of the two specimens were removed and preserved in 75% ethanol and the specimens were prepared as study skins and skulls and deposited in the mammal collection of the Museu Nacional, Rio de Janeiro (MN 37029 and MN 37030; male and female, respectively). Stomach contents were examined under a binocular microscope to determine the nature of food items. For further details on the methodology to study stomach contents, see MILTON and NESSIMIAN (1984). The food items are deposited as vouchers in the Museu Nacional.

Blarinomys breviceps has been recorded from several localities, primarily montane forests, in the states of Bahia, Minas Gerais, Espírito Santo, and Rio de Janeiro in eastern Brazil, and in all instances the elevation for all localities was above 750 m (MATSON and ABRAYAYA 1977). It is interesting to note that MATSON and ABRAYAYA (1977) speculated that records from Ilhéus in the state of Bahia (MOOJEN 1952; ÁVILA-PIRES 1960) might indicate that *B. breviceps* did occur at sea level. However, in the view of the fact that the region of Ilhéus also includes montane areas, MATSON and ABRAYAYA (1977) suggested that "*B. breviceps* occurs chiefly in montane areas." The locality of Aracruz in the state of Espírito Santo, where the specimens reported here were collected, is located 60 m above sea level, and this record definitely establishes that *B. breviceps* is not restricted in distribution to montane forests in the highlands of eastern and southeastern Brazil as previously thought.

The diet of *B. breviceps* is so far unknown, although authors have suggested that this species is an insectivore (ABRAYAYA and MATSON 1975; MATSON and ABRAYAYA 1977). Detailed analysis of the stomach contents in the two specimens of *B. breviceps* showed arthropods of six different taxonomic orders, representing at least five families (Tab. 1). We present the data separately because the arthropod taxonomic groups represented in the stomach contents differed in the male and female *B. breviceps*. Approximately 90% of the

Table 1. Insects and arachnids recovered from the stomach contents of a male and female *Blarinomys breviceps*

Order	Specifications	Minimum number of individuals
Male		
Coleoptera	Curculionidae (one species)	1
	Scarabaeidae (one species)	1
Hymenoptera	Formicidae (two species)	2
Araneae	Ctenidae (<i>Ctenus</i> sp.)	1
Female		
Coleoptera	Scarabaeidae (one species)	1
Hymenoptera	Formicidae (four species)	6
Isoptera	one species	13 workers, 2 soldiers
Blattariae	one species	remains of ootheca
Araneae	Trechaleidae (one species)	1
Amblypygi	one species	1

diet is composed of insects, and the remaining items are represented by arachnids. The two individuals share food items in one beetle family, Scarabaeidae, one family of Hymenoptera, Formicidae, and the order Araneae, although different families are present in the male and female. Specimens representing Isoptera, Blattariae, and Amblypygi were found only in the female stomach. The data obtained from the two specimens described here indicate that *B. breviceps* feeds primarily on insects, and thus confirm the conjecture of ABRAYAYA and MATSON (1975).

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Literature

- ABRAYAYA, J. P.; MATSON, J. O. (1975): Notes on a Brazilian mouse, *Blarinomys breviceps* (Winge). Contrib. Sci. Nat. Hist. Mus., Los Angeles Co. **270**, 1–18.
- AVILA-PIRES, F. D. (1960): Roedores colecionados na região de Lagoa Santa, Minas Gerais, Brasil. Arq. Mus. Nac., Rio de Janeiro **50**, 25–43.
- DAVIS, D. E. (1944): The capture of the Brazilian mouse *Blarinomys breviceps*. J. Mammalogy **25**, 367–369.
- DAVIS, D. E. (1945): The annual cycle of plants, mosquitos, birds, and mammals in two Brazilian forests. Ecol. Monog. **15**, 243–295.
- GOELDI, E. A. (1902): Dois roedores notáveis da família dos ratos do Brazil. Bol. Mus. Paraense Hist. Nat. e Ethnog. **3**, 166–180.
- MATSON, J. O.; ABRAYAYA, J. P. (1977): *Blarinomys breviceps*. Mamm. Spec. **74**, 1–3.
- MILTON, K.; NESSIMIAN, J. L. (1984): Evidence for insectivory in two primate species (*Callicebus torquatus lugens* and *Lagothrix lagothricha lagothricha*) from northwestern Amazonia. Am. J. Anthropol. **6**, 367–371.
- MOOJEN, J. (1952): Os roedores do Brasil. Rio de Janeiro, Brazil: Instituto Nacional do Livro.
- NOWAK, R. M.; PARADISO, J. P. L. (1983): Walker's Mammals of the World. 4th ed. Baltimore: The Johns Hopkins Press.
- THOMAS, O. (1896): On new mammals from the Neotropical region. Ann. Mag. Nat. Hist. **6**, 301–314.
- WINGE, H. (1888): Jordfundne og nulevende Gnavere (Rodentia) fra Lagoa Santa, Minas Gerais, Brasilien, E. Museo Lundii **1**, 1–200.

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